

# effective prevention Strategies in

## Low hiv prevalence settings



Joint United Nations Programme on HIV/AIDS

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UNAIDS Best Practice Key Materials



# Effective Prevention Strategies

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# 1 INTRODUCTION

**While several** countries in sub-Saharan Africa continue to experience widely disseminated HIV epidemics in which over one-quarter of their adult populations are infected, available epidemiological data suggest that most countries in the world have epidemics that are currently comparatively more concentrated and limited in scope.

Countries with low HIV prevalence share a set of concerns and challenges regarding their responses to a potential HIV epidemic. Many of these countries also present an opportunity to avert large numbers of future HIV infections if appropriate prevention strategies are chosen and implemented early, greatly reducing future HIV/AIDS-related costs to the country. The purpose of this publication is to identify those challenges and propose a prevention strategy that can maintain low HIV prevalence in the general population, while reducing existing or

preventing potential HIV sub-epidemics in population subgroups with substantial levels of risk behavior.

Decisions on the strategic placement and targeting of prevention interventions are important to both international agencies and countries planning their prevention response. Both need to make difficult choices regarding geographic and population subgroups to ensure that resources are allocated efficiently.



# 2 Overview of Low HIV prevalence countries

**The diversity** of HIV spread throughout populations is striking: 16 countries (all in sub-Saharan Africa) report an overall adult HIV prevalence of over 10%, 8 countries between 5% and 10% (also all in sub-Saharan Africa), 28 countries between 1% and 5%, and the remaining 119 countries of the world less than 1% HIV prevalence among adults.

Apart from those in Sub-Saharan Africa, the only countries in the world which are estimated to have over 1% of their populations currently HIV-infected are Haiti (5.17%), Bahamas (4.13%), Cambodia (4.04%), Guyana (3.01%), Dominican Republic (2.8%), Thailand (2.15%), Belize (2.01%), Myanmar (1.99%), Honduras (1.92%), Panama (1.54%), Guatemala (1.38%), Suriname (1.26%), Barbados (1.17%) and Trinidad & Tobago (1.05%)<sup>1</sup>.

Some of the most heavily populated countries in the world (China, India, Bangladesh, and Indonesia for example), currently report population prevalence of less than 1%. However, at least in China and India, this overall low prevalence masks substantial sub-epidemics, some of which are infecting large proportions of the population. In India, the states of Maharashtra, Tamil Nadu, Gujarat, Andhra Pradesh, and Manipur have more than 1% of their populations infected. In China, specific areas of Yunnan province are highly infected because large proportions of the population report injecting drugs and are exposed to HIV infection through needle sharing. HIV prevalence in sex workers and injecting drug users has topped 20% in some parts of Indonesia.

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<sup>1</sup> UNAIDS . (2000) . Report of the global HIV/AIDS epidemic  
June 2000 UNAIDS : Geneva.

Several countries currently have concentrated epidemics whereby overall population prevalence remains low, but high-risk sub-groups such as commercial female sex workers (FSW), injecting drug users (IDU), and men who have sex with men (MSM) have rising HIV rates. For example, Russia, and several countries in Eastern Europe have burgeoning IDU populations, and HIV prevalence is rising rapidly among them.

In Western Europe, North America, and Australia, early successes with MSM populations to increase condom use have been recently threatened because of relapse into unsafe sexual behavior as well as the entrance of new cohorts of young persons who do not perceive themselves to be at high-risk of HIV infection.

Even where HIV prevalence is low in vulnerable subpopulations, other sexually transmitted infections (STIs) may be high, signaling that HIV may enter in the future. For example, sex workers in several areas of Indonesia had high levels of chlamydia and gonorrhea for years but low levels of HIV. This high prevalence of STIs and the sexual networks that produced it may have contributed to the rise in HIV recently recorded among sex workers in several provinces including Riau and Papua.

# 3

## Challenges in Low HIV prevalence countries

**The impediments** facing countries with low HIV prevalence permeate responses at all levels: from policy formulation to prevention planning and implementation strategies, and finally to individual behavior change. This section discusses some of the most significant challenges facing these countries in mounting an effective prevention response.

### Low prevalence = Low priority

At the policy level, low HIV prevalence typically translates to governments assigning a low priority to HIV prevention, especially given the competing health, education, economic development, and defense concerns typical among most developing countries. Since HIV is invisible in its early stages and early epidemics place few demands on the health sector, there are few readily apparent reasons to initiate a response or turn limited human resources and budgets to prevention.

### Low prevalence = “risk behavior doesn’t happen here, so we don’t need to talk about it”

In some countries, low HIV prevalence is used to support the mistaken but often widely held claim that the behaviors that promote HIV transmission, such as multiple sex partners and injecting drug use, do not exist in the country. This is commonly used as a justification for non-response. In addition, most countries have cultural and religious barriers that restrict an open and frank dialogue on sexual and drug-related issues. The ensuing silence surrounding these behaviors frequently impedes an effective response to a potential HIV epidemic.

## Low prevalence = no ability and no desire to prioritize the response

At the prevention planning level, low HIV prevalence often translates into a lack of direction in the prevention response. Although a common issue at all epidemic levels, the debate over the appropriate balance between prevention efforts for the general population and for more vulnerable sub-populations is particularly fervent and difficult to resolve in countries with low HIV prevalence. With few individuals infected in a country, are all at risk or none at risk? In a low prevalence setting, there is often a substantial lack of data signaling the epidemic's course making it more difficult to assess where a prevention response is more likely to have an impact. The lack of prevalence data also makes it harder to determine if the current prevention response is effective or not.

Tangible political pressures often exist to protect the broad populace, while negative societal attitudes often discourage efforts targeted at vulnerable sub-populations. This has the tendency to produce a default prevention strategy that almost totally bypasses those sub-populations with more risk behavior in favor of efforts targeting the masses. Such responses are less threatening and more politically rewarding, even though they may be much less effective at preventing epidemic growth. The social and cultural barriers to directing attention towards marginalized population groups, such as injection drug users and men who have sex with men, are so great in some countries that the perceived political costs of doing prevention efforts among them outweigh any apparent public health benefits in the minds of the decision makers. And yet, these are often the sub-populations where HIV gains its initial foothold before spreading more generally. Early prevention efforts to address the sub-epidemics in these groups could reduce the probability of more extensive epidemic spread to almost zero.

## Low prevalence = "I'm not at risk"

Even with appropriate interventions, changing behaviors in low-prevalence settings is difficult because of individuals' low risk perception. In "low prevalence" settings, even individuals who know they have substantial risk behavior may still not see themselves as "at risk" since they don't believe that HIV is present at any significant level. This lack of risk perception is further exacerbated by a lack of media attention to the epidemic as well as the absence of visible people with HIV or symptomatic AIDS to provide "evidence" of an epidemic. People with HIV and AIDS, whose involvement in prevention interventions is known to support behavior change, often are not available in the early stages of the epidemic, when their participation is needed most.

For example, behavioral surveillance in Indonesia from 1996 to 1999 indicated that the absence of a visible epidemic together with the country's economic and social crisis might have impeded behavior change among several vulnerable groups. Despite the presence of comprehensive interventions in the form of outreach, condom social marketing, and mass media campaigns, reported condom use between sex workers and their clients remained low during a 3-year period and only began to increase in the fourth year<sup>2</sup>. These results suggest that the behavior-change process may require several years of intensive interventions in a country with a low-level epidemic. The message is unequivocal:

*"Interventions take potentially many years to reach their goal of behavior change, and expectations by governments or funding agencies of shorter-term solutions are unrealistic and potentially detrimental."*

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<sup>2</sup> Center for Health Research, University of Indonesia. Results of the 1996-1999 Behavioral Surveillance Surveys in Jakarta, Surabaya, and Manado. Jakarta: Center for Health Research, University of Indonesia; 2000.

# 4

## Will low HIV prevalence countries stay low?

**The ‘low prevalence’** label applied to a country is problematic and begs for clarification, redress, or disposal. All countries, including those severely affected in sub-Saharan Africa, have at some point in their epidemic histories been ‘low-prevalence’ countries. For example, South Africa, which now has among the worst HIV epidemics in the world, was considered low prevalence just 10 years ago when other African epidemics were already well under way. Current HIV prevalence helps to plan surveillance and interventions efficiently, but it is not predictive of the future of the epidemic. In fact, predicting the magnitude of future epidemics is challenging and has historically been highly inaccurate.

Even in the absence of prevention interventions, countries with currently low HIV prevalence may or may not, over time, develop larger-scale epidemics<sup>3</sup>. In some countries overall levels of behavioral risk and other factors contributing to HIV spread may in fact be low enough that the epidemic will remain confined to a small subset of the population with high levels of behavioral risk.

The warning used in some countries that they will inevitably follow the epidemic path of sub-Saharan Africa may help to garner resources initially, but it is frequently without epidemiological basis and is potentially damaging in the long run to public health’s credibility and to the sustainability of HIV prevention efforts when such a scenario is not realized.

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<sup>3</sup> Mills, S. (2000). Back to behavior: Prevention priorities in countries with low HIV prevalence. *AIDS* 2000, 14 (suppl 3):S267-S273.

Similarly, the claim that all low-prevalence countries will remain low ignores a number of realities. Many parts of the world, for example, the former countries of the Soviet Union, have remained isolated from the global pandemic until very recently, and some of these areas have significant potential for HIV spread. In many parts of the world, e.g., economic zones in China, behaviors are changing rapidly as economic growth affects people's ability and incentives to buy or sell sex and drugs, or as restrictive social control systems lose their hold. And while HIV epidemics often grow exponentially, the early phases of that growth may take an extended period, depending on how extensive and pervasive sexual and injecting drug use networks are.

In Thailand where the virus was first detected in the country in 1984, extensive HIV spread among sex workers and clients didn't really begin until five years later, despite behavioral conditions at the time that proved quite conducive to extensive HIV spread. Similarly in Nepal, HIV prevalence in IDUs in Kathmandu remained close to zero from 1991 to 1994, but when measured in 1997 had risen to 50%. Thus, HIV may require some time to "find" those at risk even when a highly efficient means of HIV transmission such as sex work or needle sharing is involved. The time required for HIV to "find" its way into the more vulnerable sub-populations may vary greatly from country to country, meaning in many places there may not yet have been time for epidemics to develop.

## Factors influencing epidemic growth

All discussion of the probability of an epidemic ultimately returns to the core concept of behavioral risk in populations. Over the past two decades, research has identified several key factors that shape the influence of behavioral risks on HIV epidemic dynamics. These factors include: the rate of partner change and type of partner; the role of very sexually active or very frequent needle-sharing groups in transmission; the presence of overlapping or concurrent sexual partnerships; mixing patterns within and between sexual and injecting drug use networks that promote epidemic spread; the size and activity levels of 'bridge' population groups that link more vulnerable groups with the broader population; and the extent of protective behaviors (use of condoms, use of clean injecting equipment, etc.) in the various sub-populations with behavioral risks.

These behavioral factors are in turn modified by other biological factors, which can enhance their influence on HIV epidemic dynamics. For example, other STIs, especially ulcerative STIs, can greatly increase HIV transmission. The fact that these STIs are often concentrated in sub-populations with greater behavioral risk, e.g., sex workers and clients, increases the influence of these sub-populations on the epidemic's progression. Circumcision is another biological factor that may greatly influence the probability of HIV transmission. Its influence is further increased if STI levels in the population are high, since uncircumcised men in most places have higher levels of STIs, especially ulcerative STIs.

### Factors influencing HIV epidemic growth

- Sizes of at risk populations
- Type and frequency of risk behavior in key sub-populations
- Presence of other STIs, especially ulcerative
- Circumcision
- Levels of protective behavior
- Networks and bridges linking key sub-populations and extending beyond those populations

The combined influence of all of these behavioral and biological factors leads to a non-random and discriminating spread of HIV in various sub-populations and the population as a whole. This varies according to local conditions. Therefore, all low prevalence countries cannot expect to have similar epidemics because their base levels of behavioral risk, the networks in which these risks reside, and the levels of biological enhancing factors are unique and varied. This diversity leads to some sexual and drug use networks that support an epidemic and others that do not. This process is governed by the concept of epidemic threshold.

### Staying below threshold - the key to effective prevention

An epidemic threshold is reached when enough critical mass of risk behaviors and contributing biological factors exists in a population to sustain an epidemic. This has been described in the scientific literature by the concept of reproductive rate, which is the number of new infections generated by each current infection. The threshold for supporting an epidemic occurs when the reproductive rate exceeds 1. This means that, if infected individuals, on average, infect more than one additional person in their lifetimes, the epidemic will be sustained and grow. On the other hand, if less than one new infection

is generated by each current infection on average, the epidemic will ultimately die out. Thus, a certain level of risk behaviors may actually exist in a population without leading to an epidemic because the reproductive rate never exceeds 1. However, when biological enhancing factors are present and sexual and drug-injecting networks are intensive enough because of mixing patterns, concurrent partnerships, and a mix of core and bridge groups, the epidemic can be sustained and continued.

***Preventing the epidemic from reaching threshold is thus key in low-prevalence settings.*** However, the exact calculation of thresholds from behavioral and biological parameters in populations is difficult, if not impossible, because of the complexities of sexual networks, the wide variation in biological contributing factors, and our limited knowledge of the exact contribution of each of these factors to HIV transmission. In fact, there are multiple thresholds in each country: thresholds for various key sub-populations and thresholds for the population at large. In practice these thresholds cannot be calculated accurately with present knowledge.

However, even in the absence of an ability to calculate these thresholds, they can be influenced by prevention efforts. Use of condoms or clean needles can drop an epidemic below threshold by preventing most new infections if the coverage of the prevention programs is good, i.e., the efforts reach a significant portion of individuals engaging in the risky behaviors in question. Changes in the forms of the sexual networks themselves can be beneficial. For example, if men reduce their numbers of visits to sex workers or injecting drug users stop injecting in shooting galleries and shift to sharing in smaller groups, HIV transmission will be reduced substantially. Similarly, efforts to reduce the biological enhancing factors, such as through improved STI care services, can also help to drop an epidemic below threshold.

However, the real utility of the threshold concept in low prevalence settings is in its call to concentrate prevention efforts on those population subgroups where threshold is most likely to be reached. Once a threshold is reached and the epidemic spreads, an increasing number of new infections will occur among members of that sub-population. Specifically, this occurs among individuals in sub-populations behaviorally linked to that population through sexual or injecting drug use networks, and among individuals who are not themselves engaging in what might be called “high risk behaviors” but who are infected by their sole sexual partner, e.g., wives of men who visit sex workers or sexual partners of IDUs. Because HIV will spread most rapidly among those with the highest levels of behavioral risk, focusing a significant portion of prevention efforts on these groups in the low prevalence phases of an epidemic will have the greatest impact on slowing the spread of HIV. However, as will be seen later in this paper, an effective strategy for prevention in low prevalence countries needs to supplement these focused prevention efforts with complementary efforts to reach the wider population in the country.

### Will low prevalence countries stay low indefinitely?

A number of factors determine whether a low HIV prevalence country will remain low. These include:

- levels and distribution of risk in a population;
- sizes of vulnerable sub-populations;
- networks and bridging;
- timing of the introduction of HIV into vulnerable sub-populations;
- epidemiological cofactors such as other STIs, frequency and type of behaviors practiced and circumcision;
- prevention efficacy and coverage in critical at risk and vulnerable populations; and
- changing behaviors.

However, in most low prevalence countries, these and other factors relating to risk behaviors are currently poorly known, poorly understood and constantly changing. For example, the absolute level of risk has rarely been measured in most countries, youth and adult behaviors are often in flux, and economic changes are significantly altering behavior in many places. Furthermore, epidemics normally consist of several loosely or tightly coupled sub-epidemics evolving at different rates and many of these sub-epidemics remain poorly characterized or measured in low prevalence countries. And finally, links between HIV, STIs, and behavior are poorly understood. This makes predictions of the future course of the epidemic difficult or impossible in most countries.

### Can we predict high HIV prevalence?

A multi-site study of factors determining HIV spread in four African towns found that the town with the highest partner exchange did not have the highest HIV level but that HSV-2 was higher in the high prevalence sites and that circumcision percentages were lower in the higher prevalence sites<sup>4</sup>. Such factors suggest a relationship exists but are not conclusive.

**Conclusion:** While some currently low prevalence countries are likely to see very limited HIV spread, others may see significant epidemics in some sub-populations, and some will see more extensive spread of HIV in the population as a whole over the next decade or two. However, with the limited behavioral and epidemiological data at present, ***it is impossible to predict whether or not sufficient risk and epidemiological conditions exist in most “low prevalence” countries to support a substantial HIV epidemic.***

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<sup>4</sup> (AIDS 2001 in print). The multicentre study of factors determining the differential spread of AIDS in four African towns. Edited by M.Carael and K. Holmes.

# 5

## The role of an HIV/AIDS classification system for countries with low HIV prevalence

In 1997, the World Bank developed a classification system by grouping countries according to the types and general prevalence of documented HIV epidemics.<sup>5</sup> Three general patterns and prevalence of HIV were described:

1. “Nascent” epidemics where HIV has infected less than 5% of people presumed to have high-risk behavior;
2. “Concentrated” epidemics where more than 5% of the highest-risk individuals were infected with HIV but the infection rate for the rest of the population was still low; and
3. “Generalized” epidemics where the rate of HIV infection was high in persons with the riskiest behavior, and 5% or more of females visiting antenatal clinics were infected, indicating that HIV has spread widely in the general population.

However, the use of the term “nascent” epidemic implies that countries in this classification are at a very early stage of an impending epidemic. This term was felt to be inappropriate since not all populations or countries in the world have sufficient HIV-risk behaviors to fuel extensive spread of HIV. In 1999, UNAIDS published a classification system similar to the World Bank’s, but made some changes. UNAIDS changed “nascent” to “low level”. This change reflected the fact that not all countries with currently low HIV prevalence were at risk of extensive HIV epidemics, while at the same time, not implying that all currently low prevalence countries would remain low prevalence.<sup>6</sup>

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<sup>5</sup> World Bank. (1997). *Confronting AIDS: Public priorities in a global epidemic*. Oxford University Press: New York, NY.

<sup>6</sup> UNAIDS/WHO. (2000) *Guidelines for Second Generation Surveillance*. Geneva: UNAIDS/WHO.

Use of the UNAIDS classification system has not been helpful for many national AIDS programs in advocating for greater responses. The use of the term “low HIV prevalence” has resulted in an assignment of a lower public health priority to and in countries so labeled and the classifications are not sufficiently specific to provide useful guidance for public health surveillance and prevention programs.

Alternate options could include a two-stage system with a “prevalence” ranking and a “risk behavior” ranking, however, too little is known about risk behavior in most countries. This hinders the ability to rank risk behavior adequately and a “low prevalence/low risk” label would further detract from the need for prevention and lead to even greater complacency.

Another option would be implementation of a numerical classification system that divides countries with less than 5% HIV prevalence in any group into several distinct categories and further focuses on prevalence among those sub-populations at greater risk of HIV, i.e., FSWs and their clients, IDUs and MSM.

Example:

Category 0: HIV may or may not have been detected in the country/province/state, and/or there are no data as to indigenous transmission.

Category: 1-HIV detected in the country/province/state and has been detected in persons with the highest HIV-risk behavior group(s) but is less than 1% for any vulnerable sub-population.

Category II: HIV prevalence detected to be consistently greater than 1%, but less than 5%, in more than one HIV Sentinel Surveillance (HSS) site for any risk behavior group.

However, in this case, almost no country would be in the “0” category. In addition, low numbers would still be seen as low and would not help in advocating for prevention.

Generalized classification schemes such as these are inherently flawed because they oversimplify complex situations and conditions. HIV epidemics are ultimately local, as are the sexual and/or needle-sharing networks that fuel them. Striking differences have been noted in sexual behaviors and the resulting HIV prevalence levels between communities only a few kilometers apart. For example, in rural Tanzania, HIV prevalence in a trading center was more than double that found in an area surrounding the trading center only 2 km away, and three to four times that found in rural villages within 8 km of the trading center.

It should also be noted that for large countries such as China, India and Indonesia, a national classification often obscures HIV patterns and prevalence that are present in many individual communities/ provinces/states. These local realities are what determine real prevention needs.

Observations over the past 15 years indicate that HIV prevalence in countries can increase slowly or rapidly dependent primarily on the prevailing pattern(s) and prevalence of HIV-risk behaviors, and on the effectiveness of public health interventions such as the 100% condom program for commercial and casual sex encounters and harm reduction for injecting drug users. Therefore, applying the results of local behavioral and epidemiological surveillance for advocacy and prevention program design may be more useful than trying to refine HIV seroprevalence categories.

# 6

## Appropriate surveillance for low hiv prevalence countries

**It has** only recently been recognized that the design of HIV surveillance systems needs to be tailored to the state of the epidemic, and that low prevalence settings require a focus on monitoring in key population subgroups with higher levels of risk, as opposed to extensive coverage in general population groups such as antenatal clinic attendees.

This recognition grew from the observation that virtually all HIV epidemics in both industrialized and developing countries have initially started and flourished in at least one or more particularly vulnerable sub-populations before spreading more broadly among the general population. In various countries, these sub-populations have included female sex workers, injecting drug users, and men who have sex with men. HIV prevalence generally rises first in these groups, gaining a critical mass, which then allows the epidemic to be sustained and spread among the broader population.

***HIV surveillance alone is insufficient, especially in low prevalence countries.*** Nepal presents an example of how the surveillance system failed to capture an increasing epidemic and how a lack of adequate resources for prevention among an important sub-population group contributed to an epidemic outbreak. Since 1989, HIV surveillance in Nepal has mainly consisted of semi-annual HIV prevalence monitoring in sentinel STI and antenatal clinic sites located throughout the country. Until 1999, prevalence among antenatal clinics remained under 0.1% and that among STI clinics under 3%.<sup>7</sup>

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<sup>7</sup> National Center for AIDS and STD Control, Nepal Ministry of Health, and the University of Heidelberg. HIV/STI prevalence in pregnant women attending antenatal clinics in different urban areas of Nepal. Final Report. Kathmandu: Ministry of Health April 2000.

Several ad hoc HIV prevalence surveys were conducted among injecting drug users between 1991 and 1994 that showed declines in unsafe injecting practices and continuing low HIV prevalence (1.6% in 1991 and 0% in 1994). These results led to Nepal being declared a success story for its harm-reduction interventions with injecting drug users.<sup>8</sup> Between 1995 and 1998, no new HIV prevalence surveys were conducted among the IDU population in Nepal. Interventions continued but anecdotal evidence indicated a failure to obtain complete coverage. In 1999, a nationwide HIV prevalence survey of IDUs found that an explosive outbreak of HIV had occurred, climbing to a national average of 50 and 40% in Kathmandu. These findings led to a necessary, albeit overdue, reassessment of both surveillance and interventions.<sup>9</sup>

HIV surveillance by itself is of limited use in places where HIV infection is still relatively uncommon, i.e. low HIV prevalence settings. Continued low prevalence in a population may mean several things:

- that members of the population do not engage in behavior that would expose them to HIV; or
- that HIV prevention programs have been successful; or
- that the virus has not yet entered or reached a critical mass in that population; or
- that the surveillance system has failed to look in the right places.

Only by supplementing HIV surveillance with behavioral information is it possible to determine which of these is likely to be the correct interpretation of low HIV prevalence. If risk behaviors do exist but are not recorded, it is difficult to direct programs and the opportunity to reduce risk before the virus explodes throughout a population will be lost.

***Behavioral data is an essential component of surveillance in low HIV prevalence countries.***

Second-generation surveillance guidelines released by UNAIDS and WHO recognize the increased vulnerability of injecting drug users, sex workers and clients, men who have sex with men and migrant populations to HIV, and encourage the monitoring of not only HIV and STI, but also close monitoring of behavioral risks in these population groups so that interventions can be implemented early and with appropriate speed<sup>10</sup>. The second-generation guidelines stress the need to design a surveillance system that is appropriate to the epidemic state of the country and the local situation. They particularly emphasize the importance of using behavioral data to inform and explain trends recorded in HIV infection in a population, and they advocate for the more extensive use of behavioral data in planning, implementing and evaluating an appropriate response to HIV.

*Behavioral data should be used to provide a firm understanding of behavioral patterns and the distribution of risk in the population, and the systems that are established to monitor these risks must feed into the design, direction and evaluation of prevention activities<sup>11</sup>.*

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<sup>8</sup> Peak, A., Rana, S. Maharhan SH, Jolley D, Crofts, N. (1995). Declining risk for HIV among injecting drug users in Kathmandu, Nepal: The impact of a harm reduction program. AIDS, 9:106701070.

<sup>9</sup> Oelrichs, RB, Shrestha, IL, Anderson, DA, Deacon, NJ. (2000). The explosive human immunodeficiency virus type 1 epidemic among injecting drug users of Kathmandu, Nepal, is caused by a subtype C virus of restricted genetic diversity. J Virol 2000, 74:1149-1157.

<sup>10</sup> UNAIDS/WHO, 2000.

<sup>11</sup> Amon et al. (2000). Behavioral Surveillance Surveys (BSS): Guidelines for repeated behavioral surveys in populations at risk of HIV. Family Health International: Arlington, VA.

***Behavior is the primary early warning system in low prevalence countries:*** Behavioral data can indicate which populations are at risk locally, and can suggest pathways the virus might follow if nothing is done to slow its spread. It can, as well, indicate levels of risk in the general population, and identify sexual links or “bridges” between those groups in the population with especially high risk of infection and those groups with lower risk.

Used appropriately, this information can act as a call to arms for people - politicians, community and religious leaders, and communities which may themselves be at risk - signaling that the threat of HIV is very real even when it is not yet visible. Such data are a powerful tool in pressing for action. However, they are only a useful tool if they are collected, carefully analyzed, and then disseminated in ways which address the concerns, needs, and spheres of influence of all relevant stakeholders - including policymakers, program planners and implementers, HIV-affected communities, and the population at large.

In principle, surveillance data collected locally is most likely to lead to action at a local level; an important consideration in decentralized health systems. However, it should also be remembered that human and financial resources at provincial or district level are often strained. Local politicians may be unwilling to dedicate scarce resources to looking for another problem. In such situations, it is therefore desirable that some central authority to carry out surveillance be retained. Centrally funded and supported surveillance carried out in areas where risk behavior is high may be an essential catalyst to effective local responses.

Dissemination of the findings must be done carefully. Research and surveillance attention can have unintended harmful consequences for disenfranchised groups. For example, if the involvement of key governmental bodies, e.g. police and community leaders, is not built into the surveillance planning process, the results may be used as a means of further restricting or enforcing legal restrictions on marginalized groups. Such measures invariably interfere with and reduce the effectiveness of prevention efforts by damaging the trust between these groups and others. Similarly, prevention efforts may be negatively affected if the results are disseminated to policymakers or the public in a way that reinforces existing stereotypes and biases, rather than building support for effective prevention, in those populations.

Good surveillance must also involve the affected communities themselves as active participants in planning and implementation. This will ensure that it is not merely an activity brought on by outsiders, and that it becomes a means of community organization, mobilization and change. Originally conceived solely as a research study nearly 10 years ago, the Sonagachi project in Calcutta, India provides an example of how involving sex workers in a project addressing their needs can strengthen prevention effectiveness. Recognizing the importance of empowering sex workers to help themselves, this project has contributed to sustaining low HIV and STI prevalence among 5,000 sex workers in an impoverished area through interventions promoting condom use and proper STI diagnosis and treatment largely conducted by the sex workers themselves.<sup>12</sup> The project has become a role model for sex worker interventions and research worldwide.

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<sup>12</sup> Jana, J. Bandyopadhyay, N., Mukherjee, S., Dutta, M., Basu, I., Saha, A. (1998). STD/HIV intervention with sex workers in West Bengal, India. AIDS, 12(suppl B):S101-S108.



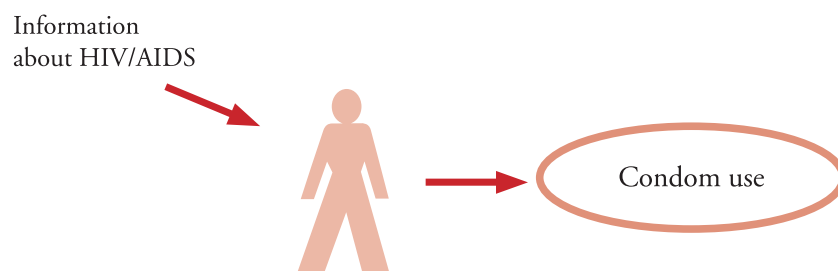
# 7 What constitutes effective hiv prevention? the individual and environmental and contextual factors

**Before** moving on to a discussion of the most effective prevention strategies for low prevalence countries, it is worth spending some time discussing what we have learned about effective HIV prevention during the first 20 years of the global AIDS pandemic.

***Providing information is not enough.*** In the earliest stages of the epidemic in the 1980s, it was recognized that HIV was a “behaviorally transmitted disease.” Thus, early conceptions of prevention were built around changing individual behavior. In the early days, a naive belief existed that merely informing people

about the presence of a deadly disease, how it was transmitted, and how to protect themselves from it would be sufficient to change behavior (see Figure 1). Early prevention efforts built around this information provision model unfortunately failed, producing little or no significant and sustainable behavioral change.

**Figure 1 Early model of how prevention works**



**Understanding environmental and contextual factors is critical to enabling people to change behavior:**

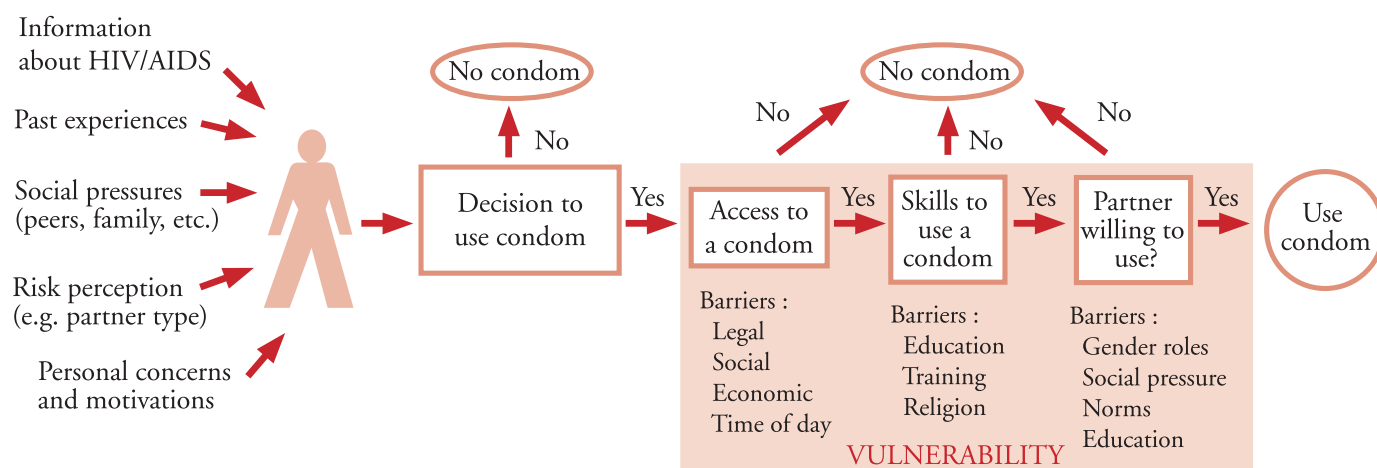
Over the next decade, recognition developed that a number of other factors influenced the effectiveness of prevention efforts. In particular, it was recognized that the individual often does not control his or her own behavior. Original models of HIV behavior change put far too much emphasis on individualistic approaches and failed to consider the social, cultural and economic environment and context in which behaviors occurred. They assumed that individuals could always make informed decisions based on the information provided to them by prevention and then act on those decisions. Numerous prevention failures in many countries helped to highlight some of the limitations of this approach.

**A more realistic model of behavior change - addressing risk AND vulnerability:**

The lessons learned over the first two decades of the pandemic have led to a more realistic model of HIV prevention, shown in Figure 2. In the real world, individuals make decisions about risk behavior not only in response to information provided, but also in response to a variety of other factors.

But in this model, even once individuals have made a decision to take protective measures, such as to use a condom, a number of other factors may stand in the way. Many of these external factors are part of the local environment in which risk behaviors occur or the context in which the risk behaviors are undertaken. Collectively, they influence an individual's vulnerability to HIV infection, that is, their ability to control and act on the decisions they make on protective measures.

**Figure 2 More realistic prevention model based on two decades of experience**



The first environmental and contextual issue that must be addressed is whether the individual has access to the means of prevention, in this case the condom. A number of barriers may stand in the way of gaining access. For example, sex workers may not be able to carry a condom if police view condoms as presumptive evidence of sex work. Many people may not be able to afford condoms, an economic barrier. Others may be too ashamed to walk into a pharmacy and ask for condoms, a social barrier. And sometimes condoms just aren't available when sex takes place, because it's late at night, because the individual is unwilling to carry a condom because of peer pressure, or because laws forbid the distribution of condoms to a young person. Similar barriers apply to access to clean injecting equipment - although the dominant barriers there remain legal and policy barriers that keep clean equipment out of the hands of injectors and force them to share equipment to avoid legal sanctions.

Once the condom is obtained, the next question to be addressed is whether the individual possesses the skills to use the condom with his or her partner. Again a number of barriers may arise. Young people may receive no skills training in use of condoms because local schools and youth organization leaders refuse to allow discussion of condoms, distribution of skills building materials, or demonstration of a condom's use. Newly recruited sex workers often have no experience whatsoever in use of condoms. Young men who have sex with men may have never been told about the use of condoms in anal sex. Religious leaders in some places oppose the teaching of condom skills or their distribution to any group. And using a condom is not just a matter of mechanical skills, it also requires negotiation and decision-making skills with partners, something often omitted from

sexual health curricula not designed by those with HIV prevention experience. Furthermore, excessive use of drugs or alcohol may prevent the individual with skills from applying those skills in a particular setting or situation.

Finally, in this example, there is also the question of whether the partner is willing to use a condom. Again, this is often ignored in ineffective prevention programs. Programs for sex workers which fail to address client resistance to using a condom, leave sex workers unable to protect themselves. Societal gender imbalances may also serve as a major barrier. In few societies can a woman ask her husband to use a condom, even if she knows he has been engaging in higher risk extramarital sexual or injecting drug behaviors. Societal norms or cultural beliefs often stand in the way of condom use, especially where use of a condom is considered a sign of character weakness by macho peers or is felt to interfere with proper sexual functioning.

As this example illustrates, a number of environmental and contextual factors not directly under the control of the individual, affect the ability to take protective measures. This has led to the realization that individually targeted prevention efforts alone are insufficient to produce sustained behavior change. Effective prevention programs must address the multitude of factors which interfere with an individual's ability to protect him/herself. That is, they must not only address risk, they must also address vulnerability.

### ***Effective prevention works at multiple levels.***

Sweat and Denison<sup>13</sup>, in discussing environmental and structural interventions, pointed out that addressing the factors influencing risk and vulnerability often requires multiple components working at several levels:

- Superstructural. These components address the large-scale social and political environments in which behavior takes place. It may require, for example, addressing gender or social inequalities which contribute to elevated risk for women or for marginalized populations such as sex workers and MSM.
- Structural. Prevention components at the structural level address laws or policies at both national and institutional level that interfere with prevention efficacy, e.g., laws regarding drug paraphernalia or policies on condom advertising. They might also seek to address operational issues, such as failures to encourage/enforce condom use in brothels, or failure to apply universal precautions in medical settings.
- Environmental. These components address the factors in the local environment that lower the effectiveness of interventions or encourage risk behavior. For example, they might seek to encourage families to migrate together to worksites instead of encouraging male only migration. Or they might seek to address lack of access to condoms or clean needles in a particular local setting. Or they might try to change social norms regarding condom use.
- Individual. These components seek to influence the individual's decisions and skills regarding preventive measures. They are what most people think of when they hear the term "prevention", but by themselves they are insufficient to produce sustained behavioral change.

### ***Important implications for prevention programs.***

The more realistic model for prevention presented here has several major implications for effective HIV prevention programs:

- Effective prevention programs must ***understand and address people's behaviors***, the context in which they occur, and the factors influencing them to change or not change their behaviors.
- Effective prevention programs ***address not only risk, but also vulnerability***.
- Effective prevention must ***involve and grow out of the community*** whose behaviors they seek to change. Only when those engaging in risk behavior are involved in the design and implementation of prevention efforts are those efforts likely to adequately reflect an understanding of the local environment and context of risk and vulnerability.
- Effective prevention efforts must involve ***multiple partners and multiple prevention components*** to address the multitude of environmental and contextual factors influencing risk and vulnerability. That is, they must be multisectoral in nature and involve multiple components working at multiple levels.

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<sup>13</sup> Sweat, M. & Denison, J. (1995). Reducing HIV in developing countries with structural and environmental interventions. AIDS, 9 (suppl A): S251-S257.

***Lessons from the first two decades of HIV prevention.*** A number of important conclusions flow out of the lessons of the first two decades in HIV prevention:

- ***Real prevention is COMPLEX, there is no “magic bullet.”*** This means there is no single prevention approach or program that can work in every important sub-population. It also means that simplistic prevention approaches, such as providing information alone, while easy to undertake, are likely to prove ineffective.
- ***Effective prevention takes time.*** Behavior change does not occur overnight. Putting the components into place to address the multiple factors influencing risk and vulnerability requires careful planning, time, effort and resources. Moving prevention efforts from a small pilot project to a national scale also takes time - time to build capacity, time to address the changes required, and time for the efforts to have an impact.
- ***Prevention efforts must begin before HIV prevalence grows to measurable levels if they hope to prevent an epidemic in low prevalence countries.*** If HIV has reached measurable levels in a sub-population, prevention efforts will be playing catch-up with the epidemic and an opportunity to keep HIV prevalence at low levels will be lost. Efforts started earlier will prove much more effective in the long run and significantly lower the ultimate burden HIV presents to a country.
- ***Prevention must take a long-term perspective.*** The HIV epidemic will be with us for the foreseeable future - no vaccines or cures are likely within the next decade. Thus, staying in a “crisis” mode which promotes “quick and dirty” but less effective prevention efforts, and ignoring the need to undertake more comprehensive multisectoral/multilevel efforts to address other contributing factors, will result in far less effective future prevention efforts.



# A recommended prevention strategy for low hiv prevalence countries

**Behavioral** change through prevention efforts is currently the only effective way to stem the further spread of HIV on a large scale. However, not all behavioral change efforts are of equal efficacy, especially in low HIV prevalence settings.

Although risk exists to some extent throughout all populations in a society, some vulnerable sub-populations are at particularly elevated risk of early HIV infection through higher levels of behavioral risk, greater exposure to HIV, and limited ability to act on their decisions regarding protective behaviors. Such sub-populations include sex workers and their clients, injecting drug users, and men who have sex with men.

**Behavior Change Communication - The Cornerstone for Low Prevalence Settings** It is often said that the low prevalence situation represents a window of opportunity for effective communication, where skilfully developed behavior change communication (BCC) interventions, targeted to sub-populations at higher risk, can slow or lessen the spread of

HIV into a wider population. Targeted BCC interventions for these sub-populations are an obvious need for low prevalence settings and are often what HIV/AIDS programs think of first. These targeted campaigns should follow state-of-the-art BCC principles, beginning with in-depth audience research and analysis to yield an “insider’s” understanding of risk, the range of barriers to safe behavior, and the potential motivators for change.

In a low prevalence setting, where contracting HIV is not yet a risk to the general population, targeted interventions need to be developed and implemented in collaboration with the target community. These communication interventions need to be grounded in participatory research and pre-testing, and to involve peer communicators who have the requisite guarantees of safety and official support.

***Focused prevention - maximizing the impact of the prevention response.*** One of the major factors influencing risk and exposure to HIV is the frequency with which one acquires new sexual or needle-sharing partners. Extensive epidemiological evidence and modeling work both clearly show that the most efficient means for reducing epidemic spread is to reduce HIV transmission among those with higher rates of partner change (either sexual or needle-sharing). Prevention of infection among those with higher rates of partner change, either sexual or injecting, has a ‘multiplier’ effect of preventing many more subsequent, secondary infections.

Focused interventions have led to successful risk reduction and decreased levels of infection. Reported condom use with last client in Abidjan increased from 63% in 1991 to 91% in 1997<sup>14</sup>. The 100% condom program in Thailand has been associated with an increase in condom use among sex workers from 14%

to 94%.<sup>15</sup> As a result of these interventions, decreased infections have been observed not only in the targeted population itself, but also in the bridge population (miners in South Africa) and even in the general population (military conscripts in Thailand).

The essential steps in creating an effective strategy in low prevalence settings are then as follows:

***1. Determine the distribution of risk in the local setting.*** In order to apply the concept of “focused prevention”; identifiable sub-populations where risk behavior is most concentrated and which are most vulnerable need to be determined on a country, state or provincial basis. Sex workers and clients, IDUs, and MSM are likely to be important in most countries, although in some countries the main route of HIV is through mobile populations traveling between areas of high and low prevalence. In any case, a realistic local assessment must be undertaken.

### Concept of Focused Prevention

- Interrupt transmission early among sub-populations at higher risk;
- Initially focus prevention resources more strongly on those with higher risk or vulnerability, but steadily expand these prevention efforts outward to reach those with lower and lower risk of HIV.
- Undertake more limited general population efforts to create a supportive environment for prevention efforts among vulnerable sub-populations and to reach those at risk individuals who may not be reached by the more targeted prevention efforts.

<sup>14</sup> Ghys, P., Mah-Bi Guessman, Traore, M. et al. (1998). Trends in condom use between 1991 and 1997 and obstacles to 100% condom use in female sex workers in Abidjan, Cote d'Ivoire. 12th World AIDS Conference, Geneva, 28 June-3 July, 1998. Abstract 33101.

<sup>15</sup> Hanenberg, RS, Rojanapithayakorn, W., Kunasol, P. (1994). Impact of Thailand's HIV-control programme as indicated by the decline of sexually transmitted diseases. The Lancet, 1994: 344:243-245.

Data must be collected and analyzed to determine the local prevention needs and to effectively target efforts toward those members of the important sub-populations who are at risk. Gathering data on the size and behaviors of these sub-populations can also help address the “we don’t have these groups” syndrome, which often stands in the way of mobilizing local resources for prevention.

**2. Undertake strategic planning for each key sub-population.** The real world of HIV prevention is complex. It requires an understanding of the needs of the targeted community; the development, testing, fine tuning and evaluation of the prevention approaches which are likely to be effective with that sub-population; and determining who has the capacity to implement the required programs. Thus, a concrete strategic plan is needed for each vulnerable sub-population, as well as a plan for general population efforts to build support and extend the impact of these focused prevention efforts.

**3. Advocate for resources and involvement.** Once a strategic plan has been developed for the key sub-population, the focus must turn to advocating for the resources needed and for the involvement of relevant partners - the affected communities, relevant NGO and governmental partners, and the private sector. This advocacy effort will typically involve:

**Behavior Change Communication - Addressing the Opinion Leaders.** Research shows that a new behavior is more likely to be generally adopted if the category of people called opinion leaders adopt it. The difficulty with the behavior changes needed for HIV/AIDS prevention is that they often consist of intimate behaviors which people are reluctant to endorse publicly. However, in a low prevalence setting, the more general need is often to reduce stigma and discrimination against people living with HIV/AIDS (PLWA), in order to improve the prevention environment. This is where advocacy often proves effective.

Opinion leaders in many societies can be induced to take the lead in modeling acceptance, care and support of PLWA. For example, in India’s Bollywood, as in Hollywood, stars have played a dominant role in attitude change campaigns promoting a caring stance towards PLWA. A recent communications needs assessment in an Indian state revealed that many people recalled a television spot from several years ago where a Bollywood star hugged an HIV-infected child. This spot was successful because of the presence of a film star, who functioned as an opinion leader for fans. The star’s involvement in the BCC campaign was a direct result of a conscious advocacy effort.

In other cases, advocacy in low prevalence settings requires influencing policy makers and gatekeepers, in order to establish a policy environment where targeted HIV/AIDS prevention efforts can be implemented. Such efforts to influence policy are not limited to formal advocacy with legislators to establish laws favoring prevention and care. Advocacy is always necessary when there is a power structure that must be addressed in order to gain entry to a certain situation and access to a certain target group. Advocacy may also include informal advocacy efforts with gatekeepers for a community at high risk, e.g. efforts to induce brothel owners to endorse a 100% condom policy. Advocacy also encompasses efforts to circumvent or bend laws, as when efforts are made to persuade police to turn a blind eye and allow HIV/AIDS interventions among populations whose behavior may be defined as illegal. e.g. IDUs.

***Identification of natural partners and of opportunities to involve others.*** Because HIV prevention requires multiple partners to address the multiplicity of factors influencing prevention effectiveness, efforts must be made to identify those who can play a role and to involve them based upon the local understanding of prevention needs.

For example, in relation to sex work, many potential partners can be identified. These could include the sex workers themselves, NGOs working with sex workers (to do skills building, condom provision for the sex workers), agencies concerned with women's education and employment (to provide women alternatives to sex work), various sectors of the government (health, police, labor, legislative, etc.), the private sector (for workplace programs for clients), and the sex establishment owners (to provide access, support for refusing clients, and distribute condoms).

In each location a careful assessment of who should be involved for each key sub-population must be followed by an active effort to actually involve them and find the resources they need.

In terms of resources, it is also important to remember that resources are not just financial - people are resources, communities are resources, institutions are resources, and businesses are resources. By involving different groups and organizations in HIV prevention, one also brings the resources they control to bear on the problem. Often this is best done as an incremental add-on to their existing

programs (mainstreaming of HIV/AIDS activities) and it may be easier to advocate for their involvement this way. For example, many policymakers and organizations are concerned with youth issues, and planning HIV prevention through the more general approach of reproductive health, which simultaneously deals with important issues of teenage pregnancy, contraception, and sexually transmitted diseases may be more acceptable in low prevalence settings.

***4. As partners and resources are identified, begin parallel pilot activities in each key sub-population, including lower risk sub-populations.*** As discussed earlier, building effective prevention on a large scale takes time. Thus, it is essential to start pilot activities early. Pilot prevention efforts are an essential part of the process of developing a comprehensive prevention program. It is through pilot activities, which may take several years to evolve and adapt to become truly effective in the local setting, that one learns to implement effective prevention. One should not wait until HIV is present in any given sub-population before starting pilot programs. This applies not only to the more vulnerable sub-populations, but also the lower risk sub-populations, including youth.

***5. Starting with the more vulnerable sub-populations, build capacity and scale up to get good COVERAGE once effectiveness of a prevention approach has been demonstrated.*** Once pilot efforts have determined what constitutes an effective prevention approach, it is essential to start the process of scaling up. Building capacity to implement the approach and then scaling it up to national levels again takes time, often measured in years. The virus will not wait, so neither can we. Initially resources for scaling up should be preferentially directed toward those sub-populations with higher levels of risk, because

that is where HIV will start to spread first. As more resources are mobilized and more partners become involved, scaling up should also occur in lower risk sub-populations. The goal of all scaling up activities is to obtain GOOD COVERAGE - that is to ensure that most of the members of the sub-population in question have the motivation, skills and access to the means of prevention.

**6. As parallel prevention efforts in more vulnerable sub-populations obtain good coverage, steadily expand prevention efforts outward to those with the lower risk/vulnerability.** Prevention efforts may never be 100% effective for several reasons such as imperfect assessments of risk or access to key sub-populations may be difficult, limiting the achievable coverage. This is particularly true when legal barriers keep sex work, injecting drug use or illegal migration underground, and less accessible to prevention. It is therefore essential to plan for the eventual spread of HIV beyond the more vulnerable sub-populations and begin efforts to reach the lower risk or less vulnerable groups. These are typically much larger sub-populations, e.g. sexually active women, and may eventually produce most of the new infections if HIV spreads beyond the more vulnerable sub-populations. Thus, once coverage has been obtained among the more vulnerable sub-populations, it is essential to expand prevention efforts outward to cover those who are less vulnerable, but still at risk.

**7. Devote some resources to address more disseminated risk, stigma and discrimination, and to promote mainstreaming of HIV/AIDS activities.** While most HIV-specific resources in low prevalence settings will be most efficiently used if directed to meet the needs of those with higher levels of risk, it is important to remember that HIV prevention occurs in a political and social environment.

**Targeted BCC = Necessary but not sufficient.** Resources also need to be devoted to raising public awareness of HIV, to reducing the stigma and discrimination that detract from public support for and impede prevention efforts, and to providing seed money for mainstreaming HIV/AIDS activities into existing institutions and programs.

**Why target the general population in low prevalence settings?** BCC interventions planned for more vulnerable sub-populations may fail if they are not also accompanied by general population interventions that enable and support them. A wide variety of general population interventions are possible, yet they all need development according to a systematic BCC methodology. BCC targeting the general population should begin, like all BCC, with audience research and analysis. In many places, popular media can be a proxy for the general population opinion. A media watch can be conducted to identify the ways in which HIV and AIDS are presented.

Some HIV/AIDS specialists believe it is a waste of time and scarce resources to target the general population in a low prevalence setting. As a result, general population campaigns have recently fallen into disrepute. This is because general population communication is too often narrowly identified with information-based AIDS awareness campaigns.

Although awareness of HIV/AIDS is everyone's right, it is a communication axiom that knowledge in itself does not lead to behavior change. The problem arises when a failure of analysis or political will, or a lapse of courage, causes an HIV/AIDS program to persist in a first generation HIV/AIDS information campaign long past its time. Such awareness campaigns focus on the safest, best known and therefore least useful facts, when what is often needed is a more forthright, second generation informational campaign, addressing the more sensitive and explicit issues of AIDS. In Bangladesh, for example (as in many countries) BCC campaigns for the general public continue to focus on the risks of heterosexual (implicitly vaginal) sex, although behavioral research shows that many men and some women also engage in anal sex with no awareness that this behavior is risky.

General population communication needs are by no means limited to awareness and information. Knowledge needs are quickly and often easily met, while attitude changes pose a greater challenge. Stigma and discrimination against PLWA are important attitudes that must be addressed through general population campaigns, but they are not the only ones. Many other attitudes also need to be addressed, including negative images of condoms, excessive, paralyzing fear of HIV; and gender stereotypes that make it impossible for women to take control of their own sexuality or require men to be sexually brutal. Many of these involve deeply held attitudes requiring slow but profound change in dominant concepts and underlying values.

**8. Institute monitoring and evaluation of behavior change** in key sub-populations. In low prevalence countries, HIV prevalence is a poor indicator of program success. By the time HIV starts rising, valuable prevention opportunities have been lost. Instead, such countries can most effectively monitor the effect of prevention efforts by monitoring and evaluating the extent of behavior change in those key vulnerable sub-populations where they have undertaken prevention efforts. Careful attention should be paid to key indicators, e.g., the percent using condoms with non-regular or commercial sexual partners or the percent of IDUs sharing needles. If prevention approaches are effective, these behaviors should be changing in directions that indicate program success. If they are not, or are changing in the other direction, they provide a strong indication that current approaches are not working (either because they are not effective approaches or because they are not reaching enough people) and need to be rethought. While regular monitoring and evaluation systems are not designed to attribute specific changes to specific interventions, in low prevalence settings with few interventions, it is worth including measures of exposure to interventions in behavioral surveillance. This helps give some idea of the coverage of existing interventions, and may give some indication whether programme failure is because of poor programme design or simply because of poor coverage.

In low prevalence countries, behavioral data remains the best source of information on prevention program effectiveness.

**9. Work closely with key “at risk” and vulnerable sub-populations.** Prevention will not be effective unless it addresses the environment and context in which risk behavior occurs and the needs of the population targeted. Thus, sub-populations need to be involved in the planning, implementation and evaluation of prevention efforts to ensure that their needs are met, the programs are appropriate, and that the communities’ own resources are mobilized and brought to bear on the problem. Trying to impose programs from outside without the involvement of the community is likely to produce less effective prevention. Stigmatized sub-populations are particularly sensitive to these issues since they have often had negative experiences with authority figures and outsiders.

**10. Build a long-term risk and vulnerability program.** An unfortunate reality is that HIV transmission will continue in all countries at some level, even in low prevalence countries.

Accordingly, it is important to prepare for the future and take a long-term perspective regarding HIV prevention. This means dealing with risk and vulnerability on a wide scale, addressing the many complex issues raised in the preceding section. Focused prevention is not enough in the long-term. While in some low prevalence countries it may prove very effective, in others, where risk is more disseminated, it may prove less successful. Low prevalence countries should therefore also seek to identify and address the factors that increase individual vulnerability.

**11. Start early and work steadily.** Real prevention is complex and takes time. Capacity building takes time, piloting of programs to fit local needs takes time, scaling up takes time and producing large-scale behavior change takes time. Many HIV/AIDS programs have been in a crisis mentality for many years, but for low prevalence countries, it is more helpful to take a long-term perspective.

### Senegal : Success from Starting Early and Working Steadily

In Senegal, HIV prevalence has remained low and stable between 1989 and now. Behavioral surveys indicate high condom use, with 60% of men and 40% of women aged 15-24 years reporting that they used a condom with their most recent casual partner. These findings have been attributed to the existing norms in society combined with a strong political response that started early in the epidemic, and included widely available STI treatment, sex education in primary and secondary schools, condom promotion and social marketing.<sup>16</sup>

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<sup>16</sup> Meda, N., Ndoye, I., M'Boup, S. et al. (1999). Low and stable HIV infection rates in Senegal: Natural course of the epidemic or evidence for success of prevention? AIDS, 13:1397-1405.



# 9

## Key approaches for specific sub-populations

**The interventions** that prevent and reduce HIV transmission in the groups with the highest risk behaviors are clearly known.

### **HIV Prevention among Sex Workers and Their Clients:**

Many projects have found that HIV prevention activities among sex workers, their clients and their partners are most effective when the intervention package contains at least 3 key elements:

- Information and behavior change messages
- Condom promotion and skills building
- STI services

The goal of sex work-related STI/HIV prevention messages is to reduce the health risk, and in particular the risk of STI/HIV infection, associated with sex work. Basic knowledge on the transmission of HIV and the protective role of condoms may not be high in a low prevalence setting. Behavior change messages should therefore focus on raising awareness and advocacy.

The male condom is currently the only effective method of protection against STI/HIV which is widely available. Access to condoms and skills in their effective use are therefore essential for effective preventive behavior among sex workers and their clients. However, the use of the male condom depends primarily upon the cooperation of the male sex partner, thus skills building for sex workers should also include negotiation and decision-making skills to allow sex workers to convince clients to use condoms or to reject that person as a client.

Prompt treatment of STIs is a key strategy for HIV prevention in any setting (low or high HIV prevalence) because certain STIs can facilitate HIV transmission.<sup>17</sup> High STI rates are often reported among sex workers in low HIV prevalence countries e.g. Philippines<sup>18</sup>. Given the prominent role more vulnerable sub-populations play in the epidemiology of STIs, diagnostic algorithms need to be highly sensitive, so as to enable treatment of as many infections as possible. STI symptoms in male clients of sex workers and their partners can be efficiently managed using simple algorithms based on a syndromic approach.

The large proportion of asymptomatic infections complicates the diagnosis and prompt treatment of STIs in female sex workers. However, algorithms for STI case management in female sex workers have been validated in several settings and successfully implemented. They include guidelines for monthly check-ups, presumptive treatment at first visit, and adapted risk evaluation.

## Preventing HIV infection in Youth:

### Youth as a critical population

- Changing behavior and attitudes is easier if started before patterns are formed
- A powerful prevention resource in their own right
- Often accessible in large numbers

Youth represent an important sub-populations in any HIV prevalence setting. On a global scale, fifty percent of new HIV infections occur in those under age 24. Even in low prevalence countries, programs targeted at youth are critical if a country is to build a society resistant to HIV in the future. Most youth have not yet formed their sexual habits and patterns. Their sexual behaviors and attitudes are much easier to change if prevention efforts reach them before they develop unsafe patterns of behavior. They are also accessible in large numbers in existing institutions at relatively low incremental cost, e.g., schools and youth organizations. And they are a powerful force in their own right, becoming an active resource for prevention in many countries when they become involved. Low prevalence countries will be well served by devoting the resources needed to mobilize existing youth institutions, organizations, and youth themselves to provide HIV prevention messages and skills.

### HIV Prevention and Injecting

**Drug Users:** There is evidence that HIV epidemics among IDUs can be prevented, slowed and even reversed in either low or high prevalence countries, through the implementation of specific strategies including:

- Community-based peer outreach
- Increasing access to sterile injecting equipment and condoms, and
- Increasing access to drug dependence treatment, particularly methadone.

Where effective action has been taken, no single element is effective on its own. Comprehensive programs, based on community development principles, operating in supportive environments that include access to social welfare and primary health care, underlie all successful approaches.

<sup>17</sup> Wasserheit, JN. (1992). Epidemiologic synergy: Interrelationships between HIV and other STDs. *Sex Transm Dis*, 19:61-77.

<sup>18</sup> Department of Health. (2000). The 1999 Technical Report of the National HIV/AIDS Sentinel Surveillance System. Department of Health: Philippines.

***HIV prevention targeting IDUs is more effective and cheaper the earlier it is implemented*** - if possible before HIV is introduced into the population or begins to spread widely (before HIV prevalence among IDUs exceeds 5%). Once HIV prevalence in IDUs reaches 10%, it can grow to 40-50% in less than a year.<sup>19</sup>

It is important to remember that IDUs are also often at risk of acquiring or passing on HIV sexually. Accordingly, prevention programs for IDUs should also include components which address sexual risk.

IDU interventions: harm reduction, including needle exchange and condom promotion

Sex workers and their clients: behavior change communication, condom-use promotion (100%), STI treatment and diagnosis

MSM: behavior change communication, condom promotion, and STI treatment

**Focus on risk behaviors  
NOT “risk groups”**

**Prevention and Care for those infected in HIV Low Prevalence Settings :** Care and support for people living with HIV, their families and their communities are frequently neglected components of HIV/AIDS programs in low prevalence settings. Many programs choose to focus solely on prevention, guided by the belief that preventing HIV infection will obviate the need for care and support.

People with HIV/AIDS require access to care whether in a low or a high prevalence setting. In many low prevalence settings, AIDS-related stigma continues to inform perceptions about and to shape the behavior of PLWA, thus affecting the success or failure of prevention interventions. Discrimination also contributes to the “invisibility” of those who are infected. Interventions/policies to combat discrimination are therefore crucial to the success of any prevention program irrespective of HIV prevalence levels in a country.

Prevention and care and support are mutually reinforcing - synergistic- approaches in several ways. Comprehensive care that meets the diverse needs of people living with or affected by HIV builds trust and creates a receptive audience among patients, families and other community members to enhance prevention efforts. It also paves the way for community acceptance of people living with HIV and decreases stigmatization. Care provision offers opportunities to make prevention interventions more acceptable and available and encourages those who receive care to practice safer behaviors.

At a minimal level, those at higher risk, or those infected, require access to voluntary counseling and testing, and if infected psychological support, and clinical management of their infection. In many low prevalence countries, the sub-populations at higher risk as those who are the most stigmatized, and have the least access to any type of health services. There is an immediate need to address the need for access to voluntary counseling and testing and health care services, including STI services, for these more vulnerable sub-populations.

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<sup>19</sup> Strathdee, SA, van Amerijden, EJC, Mesquita, F., Wodak, A., Rana, S., & Vllahow, D. (1998). Can HIV epidemics among injection drug users be prevented? AIDS, 12(Suppl A): S71-S79.

**Antiretroviral therapy:** The introduction of antiretroviral therapies has dramatically reduced morbidity and mortality in most high-income low prevalence countries and some middle-income countries. However, because of their high cost and complexity, access to antiretroviral drugs is limited in many resource-constrained low prevalence settings.

But despite the obvious benefits, the new drugs and wider distribution may have an unintended side effect. The prospect of a “quick fix” for existing HIV cases may take the spotlight off the single most important factor in curbing the spread of the virus-prevention. Hard won efforts in prevention may become overshadowed by the urgency to make ARV drugs more available.

In the West, the rise of antiretroviral therapies has pushed prevention programs out of the spotlight, and in some places, unfortunately, to the backburner. Recent studies of HIV-infected people in such cities as Los Angeles, Vancouver and Sydney have shown an alarming trend back toward risky behavior, such as unprotected sex, multiple partners and failing to disclose HIV status to prospective sex partners. Prevention - through adequate education and awareness raising- can still help others from becoming complacent and save lives.

**Prevention of pediatric transmission through antiretroviral drugs:** The implementation of various antiretroviral (ARV) regimens to prevent transmission of HIV from mother to child (MTCT) is now internationally recommended as a minimum standard of care. Practical implementation guidelines for strengthening maternal-child health, family planning and voluntary HIV counseling and testing services, introducing ARV regimens and improving infant feeding options are available and regularly updated through the various United Nations partners and international NGOs.

**STI interventions in the general population:** Evidence suggests that STI interventions for the general population, especially women, in low prevalence settings are problematic primarily because of the asymptomatic nature of most STI among women and the low specificity of most treatment algorithms. A study in Bangladesh of two syndromic management algorithms, for example, found high rates of overtreatment among women. The study called into question the clinical effectiveness and cost-effectiveness of linking STI control with family-planning programs in low-prevalence settings, especially at the cost of STI programs targeting men and high-risk groups.<sup>20</sup>

**Blood Safety for the general population:** A reliable and safe blood supply is still out of the reach for untold millions of people around the world. Bloodborne transmission of HIV accounts for up to 10% of HIV infections in countries with limited resources. The vast majority of these infections can be prevented by:

- Reducing unnecessary transfusions by effective clinical use of blood;
- Educating, motivating, recruiting and retaining low-risk blood donors; and
- Screening all donated blood for infectious agents.

These effective interventions to prevent blood borne transmission of HIV apply to all countries, irrespective of the prevalence levels. In addition, many countries, often with limited resources, have made progress toward securing an adequate supply of blood. For example, the elimination of paid donors in countries such as Thailand and parts of India, has reduced seroprevalence in the donor pool.

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<sup>20</sup> Hawkes, S., Morison, L., Foster, S. et al. (1999). Reproductive-tract infections in women in low-income, low-prevalence situations: assessment of syndromic management in Matlab, Bangladesh. *Lancet*, 354:1776-1781.

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## Conclusion

Low prevalence prevention presents unique and difficult challenges, yet the opportunities for containing the epidemic are immense. Evidence demonstrates that prevention of HIV can be achieved, but it is essential to select appropriate interventions on the basis of information regarding the prevalence of HIV, and the behaviors of those most at risk. Experiences from North America, Europe and

countries such as Senegal, confirm that the cheapest and most cost-effective way to maintain low HIV prevalence is to provide effective prevention to a large proportion of the groups with the highest risk behavior early in the epidemic.

At the same time, the challenge remains to garner sufficient political and public support to attain the maximum impact from these early interventions.







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